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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SENF, BEHROOZ M

ART UNIT PAPER NUMBER

2613

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/396,470

Applicant(s)

JANG ET AL.

Examiner

Behrooz Senfi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/23/2004, fwd 10/26/2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) 8, 17 is/are withdrawn from consideration.  
5) ☒ Claim(s) 9, 18 and 20 is/are allowed.  
6) ☒ Claim(s) 1-7, 10, 12-16 and 19 is/are rejected.  
7) ☒ Claim(s) 11 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's arguments with respect to claim 1, have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amends (amendment, filed 7/23/2004) claims 1, 5 and 15, also Canceled claims 8 and 17.

### **Response to remarks:**

Applicant asserts that (amendment, filed 7/23/2004, page 10, lines 15 and page 11, last lines of the page), it is noted that "photometry is not mentioned in the Bajaj '266 patent".

In response, examiner agrees with the applicant. However, applicant fails to explicitly and ~~specifically~~ define the "Photometry information" in the specification. Therefore, examiner used the dictionary meaning of "Photometry information", and cited (col. 14, lines 62 – 65) of the reference patent Bajaj '266 to meet the limitation as claimed.

Applicant fails to explain and/or raise any issues regarding claims 3 – 6, 10, 12 – 13, 15 and 19, that why the cited references fails to meets the limitations as claimed, beside just mentioning the references des not meet the limitations.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Bajaj et al. (US 6,438,266) for the same reason as stated in previous office action (paper no. 18, dated 3/8/2004).

Regarding claim 2, Bajaja '266 discloses the claimed limitation "progressive 3-D mesh information coding" (i.e. fig. 10), and "dividing a 3-D mesh into a plurality of mesh components, wherein each of the mesh components corresponds to a different partition of the 3-D mesh" (i.e. fig. 3a – 3c), and "coding each of the plurality of mesh components" (i.e. figs. 1 and 10, col. 3, lines 60+ and col. 6, lines 20 - 30) and "multiplexing the plurality of code mesh components into a compressed bit stream and transmitting the compressed bit stream" reads on (i.e. fig. 10, combine Encoding), and "wherein each of the plurality of mesh components includes at least connectivity information, geometry information and photometry information which are necessary to reconstruct the coded mesh component" reads on (i.e. fig. 31, abstract lines 4 – 7 and col. 14, lines 62 - 65). Note: Applicant fails to explicitly or pacifically define the "Photometry information" in the specification.

### **Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1, is rejected under 35 U.S.C. 103(a) as being unpatentable over Bajaj et al. (US 6,438,266).

Regarding claim 1, Bajaja '266 discloses the claimed limitation "progressive 3-D mesh information coding" (i.e. fig. 10), and the claimed "dividing a 3-D mesh into a plurality of mesh components, wherein each of the mesh components corresponds to a different partition of the 3-D mesh" (i.e. fig. 3a – 3c), and the claimed limitation "coding each of the plurality of mesh components, wherein the plurality of coded mesh components are capable of being decoded and incrementally (independently) reproduced as unit mesh parts of the 3-D mesh" (i.e. figs. 1 and 10, col. 3, lines 60+ and col. 6, lines 20 - 30) where discloses incremental encoding and transmission to decoder, and the decoder would decode the information as received incrementally, and the claimed limitation "multiplexing the plurality of code mesh components into a compressed bit stream and transmitting the compressed bit stream" reads on (i.e. fig. 10, combine Encoding). Bajaja '266 fails to explicitly show mesh component are capable of being "independently decoded". However, Bajaja '266 teaches, mesh component are "encoded independently" (i.e. col. 4, lines 4 – 5). It would have been obvious to one skilled in the art that "decoding" is the reverse process of encoding; therefore by encoding the mesh component independently possibly the decoding would be independent too.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 – 7, 10, 12 – 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bajaj '266.

Regarding claims 5, 10, and 15, Bajaj '266 teaches decomposing the bit streams into contours and dividing contours into plurality of mesh component, wherein the plurality of mesh components are capable of being incrementally reproduced as unit mesh parts of the 3-D mesh" (i.e. figs. 1, 3a – 3c and 10, col. 3, lines 60+ and col. 6, lines 20 - 30), and the decoding process in claim 5 is reversible process of the encoder (see fig. 1, 14, and 18). Therefore, one skilled in the art would use the decoder (18) to decode the transmitted encoded 3-d image (see the encoding process (14) of fig. 1) to display (19). Composting the decoded image must be done by the decoder (18 of fig. 1, col. 1, lines 55+), which the decoded image has been reconstructed (synthesizing) for display (19), and the extracting mesh layers from 3-d mesh (see layers of 0 – 3 of fig. 3a – 3b).

Regarding claim 3, the limitation as claimed "extracting one or more mesh ....." and "dividing the one or more mesh ....." has been explained in the above rejection with respect to claims 5, 10, 15.

Regarding claims 4, 6, 7, 14, and 16, in the coding/decoding process, reusing the (coded) information to speed up the process of (compression) coding/decoding, would have been obvious to one skilled in the art.

Regarding claim 12, as for “extracting mesh object layers”, the limitation as claimed is substantially similar to claim 10, and has been discussed (see the above explanation with regards to claim 10), and as for “independently coding and transmitting”, Bajaj '266 teaches compression and encoding and transmitting (see 14 and 15 of fig. 1 and also fig. 10), and the “decoding and reconstructing .....” (see 18, of fig. 1) and as for “removing the redundant information”, would have been obvious to one skilled in the art since removing the redundant information is one of the means primarily used for compressing data, and “a 3-d data analyzer for receiving a 3-d mesh .....” the functionality of “analyzer” as recited in the claim, for dividing a 3-d mesh into one or more independent mesh layers is similar to receiving the 3-d mesh and decomposing into one or more contours (see fig. 3a and 10), and the limitation claimed “incrementally reproducing mash parts” has been discussed above.

Regarding claims 13 and 19, Bajaj '266 teaches 3-d mesh information coding/decoding as discussed above, and as for “one or more mesh object layer coders .....” and “one or more mesh object layer decoders .....” (see abstract, lines 2+, fig. 1, 14 and 18, and also figs. 10, and 32), and the claimed “a 3-d mesh analyzer for receiving a 3-d mesh and dividing an input 3-d mesh into one or more mesh object layers”, the functionality of “analyzer” as recited in the claim, for dividing a 3-d mesh into one or more independent mesh layers is similar to receiving the 3-d mesh and

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decomposing into one or more contours (see fig. 3a and 10) and the newly added limitation in claim 19, "wherein each of the plurality of coded mesh components include information necessary such that, when decoded, is capable of being rendered as a unit mesh part of the 3-D mesh" reads on connectivity information as cited in claim 2, and has been discussed.

***Allowable Subject Matter***

8. Claims 9, 18 and 20 are allowed over the prior art of the record.

9. The following is an examiner's statement of reasons for allowance: The claimed invention requires common limitation of "removing redundant information in decoding to reconstruct the original 3-D mash, along with other elements in independent claim 9".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

10. Claim 11, is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within



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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(703)305-0132**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(703)305-4856**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**Or faxed to:**

**(703) 872-9314**


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

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B. S. B. S.

12/19/2004

  
CHRIS KELLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600